



# Basics About Magnets

## History of Magnetism

**Magnets and why they work remains one of life's mysteries.** People were fascinated by magnetic properties as early as 600 B.C. The name "magnet" was first used by the Greeks for describing a mysterious stone that attracted iron and other pieces of the same stone. One account says that the name was fashioned after the shepherd, Magnes, who, according

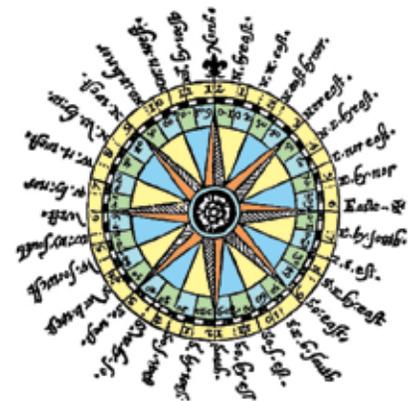


to Greek legend, discovered the stone by accident while tending his flock. The iron tip of his staff was attracted by a mysterious force to a large rock. There was such a powerful attraction that it took intense efforts for the boy to separate the staff from the stone.

Another, more believable account says that the word "magnet" came from a city in Asia Minor, called Magnesia,

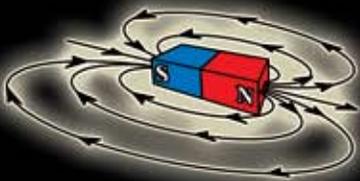
(today called Manisa, in modern day Turkey) near to where many magnetic stones were found. During the Middle Ages, this naturally occurring rock became known as lodestone, which is the magnetic form of magnetite.

The mariner's compass was probably the first important magnetic device. It is thought to have come to Europe from China around the 12th century. It was discovered that a magnet, when allowed free movement, always pointed in the same north/south direction. This discovery was extremely important to mariners who, until then, had trouble navigating when skies were clouded and they could not see the sun or stars for guidance.



## What is a Magnet?

A magnet is an object made of certain materials which create a magnetic field. Every magnet has at least one north pole and one south pole. By convention, we say that the magnetic field lines leave the north end of a magnet and enter the south end of a magnet. This is an example of a magnetic dipole ("di" means two, thus two poles).



If you take a bar magnet and break it into two pieces, each piece will again have a north pole and a south pole. If you take one of those pieces and break it into two, each of the smaller pieces will have a north pole and a south pole. No matter how small the pieces of the magnet become, each piece will have a north pole and a south pole. It has not been shown to be possible to end up with a single north pole or a single south pole which would be a monopole ("mono" means one or single, thus one pole).

# Many Different Types to Choose From.

## Permanent Magnetic Materials

Magnets in their raw form, suitable for OEM applications and machinery. Choose from many sizes and shapes.

### Neodymium\*

Super holding power / strongest magnetic material in the world.



### Samarium Cobalt\*

Extremely powerful, small size, rare earth magnets.



### Ceramic

Powerful, economically priced and differing strengths.



### Alnico

Horseshoe, rod and bar shapes, feature high heat resistance.



## Flexible Magnetic Materials

Sheeting, strip and powerful assemblies for ad specialty, sign making and point-of-purchase displays.

### Sheeting

Rolls and custom cut sizes for vehicle graphics.



### Strip

For shelf labeling.



### Print Direct

Magnetic sheets and rolls to use with inkjet and solvent inkjet printers and plotters.



### Pouches and Photo Pockets

For photos, schedules, shelf labels, plus keeping commonly used items at hand.



### High Energy

Multi-poled and stronger than standard flexible magnetic material.



### Business Cards

Magnetize your own business cards quickly and easily. Ideal for contractors, salespeople, real estate brokers, repair services, technicians and more.



Peel Apply

MASTER MAGNETICS, INC.



Visit The Magnet Source today at: [magnetsource.com](http://magnetsource.com)

General questions and inquiries:

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800.525.3536

\*Neodymium and Samarium Cobalt are classified as Rare Earth magnetic materials. They are called rare earth because their composition elements found in the "Rare Earth" or Lanthanides portion of the Periodic Table of Elements. Neodymium magnets (Nd-Fe-B) are composed of neodymium, iron, boron and a few transition metals. Samarium cobalt magnets (SmCo) are composed of samarium, cobalt and iron. These rare earth magnets are extremely strong for their small size, metallic in appearance and found in simple shapes such as rings, blocks and discs.

## Places Magnets and Magnetic Devices are Used

### Shop and Garage

Magnetic Tool Holders  
Retrieving Magnets  
Floor Sweepers  
Belt Clip Magnet  
Magnetic Hooks and Clips  
Screwdriver Magnetizer/Demagnetizer  
Automotive Tools  
Measuring Tape Magnet

### Home and Kitchen

Magnetic Utensil Holders  
Colorful Ceramic Magnets  
Magnetic Hooks and Clips  
Magnetic Push Pins  
Magnetic Tape  
Flexible Patriotic Magnets  
Hold Everything Magnets  
Magnetic Photo Pockets

### Office

Magnetic Business Cards  
Inkjet Printable Magnetic Sheeting  
Magnetic Tape  
Magnetic Hooks and Clips  
Magnetic Photo Pockets  
Magnetic Push Pins  
Hold Everything Magnets

## Industrial Magnetic Devices and Assemblies

Magnets encased in metal or plastic assemblies. Use to retrieve, lift, hold or separate.

- Base Magnets with Knobs



- Bulk Parts Lifters



- Cow Magnets



- Gaussmeters



- Handle Magnets



- Holding and Retrieving Magnets



- Hooks, Hangers and Clamps



- Latches and Catches



- Magnetizers



- Material Handling Devices



- Name Badge Magnets

- Neodymium Lifts



- Parts Trays



- Pick-Up Pal™

- Pickup / Positioning Devices

- Plate and Separation Devices

- Pole Finders

- Retrieving Batons

- Round Base and Assemblies

- Separation Devices

- Sweepers

- Work Holding Devices

- Welding Devices

- Water Treatment Magnets

## Packaged for Retail

Hardware, home improvement and hobby magnets for use in the home, office, school, garage or jobsite.

We can custom build any planogram assortment to your specifications.

- Hardware
- Home Improvement
- Automotive
- Office
- Housewares
- Craft and Hobby
- Impulse Magnets
- Impulse Strips
- Magnet Floor and Counter Displays



## Hobby Shop

Ceramic Magnets  
Neodymium SUPER Magnets  
Magnetic Sheeting  
Magnetic Tape  
Sewing Magnets  
Photo Quality Inkjet Printable  
Magnetic Sheeting

## Jobsite

Heavy Duty Handle Magnets  
Heavy Duty Retrieving Magnets  
Welding Magnets  
Material Handling Magnets  
Magnetic Tool Holders  
Floor, Hanging and Trailer  
Magnetic Sweepers

## Science Lab

Horseshoe Magnets  
Eddy Current Kit  
Field Viewer Cards  
Gaussmeters

MASTER MAGNETICS, INC.  
**THE MAGNET SOURCE**

# Your Best Source in the Magnetic Field!

## Magnets are Everywhere

Magnets appear in many different sizes, materials, and shapes. There are rings, discs, blocks, rectangles, arcs, rods and bars. Other, more unique shapes are made by combining magnets and steel bars into magnetic assemblies. Even though horseshoe magnets are still available, they are not used for applications as often as these other, more popular shapes.

Currently there are five types of magnet material: Alnico (aluminum,

nickel and cobalt), Ceramic (strontium ferrite), Samarium Cobalt, Neodymium and Flexible, a rubber-like material. Each has unique uses and features. (see page 2)

Today, applications for magnets and magnetic assemblies are numerous and often unique. Technology is carrying magnets into the future with new applications being discovered daily. Modern magnets can even be found in wind turbines, cars and homes.



## The Magnet Source

Master Magnetics, Inc. manufactures and distributes magnetic products for industrial and commercial use, serving customers across the U.S. and abroad. Our large inventory and warehousing capability allows us to serve a wide range of customers with many types of applications. Currently, we have over 15 million magnets in stock. We have excellent resources for raw material magnets and the machi-

nery to cut, grind and magnetize magnets to meet our customers' applications. Our other manufacturing capabilities allow us to produce a wide variety of magnetic assemblies.

MASTER MAGNETICS, INC.



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## Think!

Can you think of more than five magnets in your house? Here are a few examples of where magnets help us at home:

- Microwave ovens
- Telephones
- Electric can openers
- Refrigerator door closures
- Cabinet door latches
- Stereo speakers
- Garage door openers
- Television sets
- Doorbells
- Personal computers

As you can see, magnets affect our lives daily. This is why it is important for new generations to learn about modern magnetic materials and uses for magnetism.

## CAUTION:

Do not place magnets near computers, computer diskettes, audio/video cassettes, credit cards or other magnetically stored media and electronic equipment. Magnets can alter or erase the important information stored on these devices.